PSYCHOLOGICAL LITERATURE.

I.—NERVOUS SYSTEM.

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OBERSTEINER, *Die neueren Anschauungen über den Aufbau des Nervensystems*, Naturwissenchaftliche Rundschau, 1892, VIII, Nos. 1 and 2.

In less than half a dozen pages the author gives a very clear and jndicial statement of the newer observations and theories which are the present guiding lines for research in the anatomy of the nervous system. Further comment is unnecessary except a word on a new term which appears in the article. For the most part anatomists take the view that the nerve cell and the nerve-fibre form a physiological unit and anatomically it is quite impossible to determine where one stops and the other begins. For the nerve cell and all its prolongations Waldeyer has suggested the term, Neuron. This fills so long felt a want and fills it so well, that there can be little question of its acceptance and hence the word of explanation.

LANGLEY AND SHERRINGTON, *On pilo-motor nerves*, Journal of Physiology, 1891, XII, 278.

The authors designate as pilo-motor those nerves which control the erection of the hairs or to use a single word, cause horripilation.

The experiments were made on a monkey, a young female Macacus rhoesus, and on cats. In all cases these nerves issue from the spinal cord by way of the ventral nerve roots and pass into the sympathetic ganglia; from there they are distributed to the skin.

The special arrangements are as follows: in the monkey the pilo-motor nerve-fibres for the head and face arise mainly from the third and fourth and less numerously from the second and fifth thoracic nerves. They pass cephalad in the cervical sympathetic and are connected with nerve cells in the superior cervical ganglion.

On stimulating the sympathetic nerve horripilation (in head and face) occurs chiefly on the homonymous side, but at the same time crosses the middle line to some extent.

On section of the sympathetic nerve the hairs lie abnormally flat in the effected region and remain so for many weeks.

In such a monkey anger and fear cause horripilation on the sound side only. The pilo-motor nerve-fibres issue in the roots of the twelfth thoracic, first, second, and third lumbar nerves, pass into the lumbo-sacral sympathetic chain and descend in it.

In the cat the pilo-motor nerve fibres are found in each nerve from the fourth thoracic to the third lumbar inclusive, sometimes also in the third thoracic. The fibres from the third or fourth to the seventh thoracic inclusive, run cephalad in the cervical sympathetic, join cells in the superior cervical ganglion, and innervate the skin on the head and

on the back of the neck. These fibres are either not present or not functional in all the cats examined.

The pilo-motor fibres from the seventh thoracic to the third lumbar nerves, supply a strip of skin about twelve cm. wide, extending down the middle of the back from the upper part of the thoracic region to a point some six cm. out on the tail.

The plan of innervation in this region is very interesting. It can be shown that stimulation of any spinal nerve root in this group causes horripilation along a strip of skin some ten cm. in length. Taking any two successive nerves the more caudal one innervates a strip of skin the beginning and end of which are about two cm. caudal of the strip innervated by the more cephalic nerve.

1. BECK, *Die Bestimmung der Localisation der Gehirn-und Rückenmarksfunctionen vermittelst der elektrischen Erscheinungen*, Centralbl. f. Physiol. 1890 IV 473.

2. FLEISCHL v. MARXOW, *Mittheilung, betreffend die Physiologie der Hirnrinde*, Ibid. 1890 IV 537.

3. BECK, *Die Ströme der Nervencentren*, Ibid. 1890 IV 572.

4. GOTCH UND HORSLEY, *Ueber den Gebrauch der Elektricität für die Localisirung der Erregungserscheinungen im Centralnervensystem*, Ibid. 1891 IV 649.

5. DANILEWSKY, *Zur Frage über die elektromotorischen Vorgänge im Gehirn als Ausdruck seines Thätigkeitszustandes*, Ibid. 1891 V 1.

The above mentioned papers are experimental, polemical and historical. They have grown out of the question, how far the activity of the central nervous system is accompanied by demonstrable electrical changes, and to what degree these changes can be used for the study of localization of function in it. Gotch and Horsley stimulated the cerebral cortex and noted the electrical changes in certain tracts of the spinal cord.

The others have for the most part applied a peripheral stimulus and noted the electromotive changes in the brain, mainly in the cortex. From the results of all, it would appear that the cortex is usually active to such an extent that there are continuous and irregular electrical changes, which can not be accounted for by distinct peripheral stimuli. Peripheral stimuli produce more or less marked changes in the resting current taken from the cortex and there seems to be some relation between the disturbance in the several sensory cortical centres and stimulation applied to their appropriate sense organs, but it is far from precise or satisfactory. On the power of anæsthetics (chloroform and ether) to prevent these electromotive changes, the authors are not in accord, Beck claiming that the spontaneous activity of the cortex continues under choloform, while v. Marxow claims that the cortex is paralyzed by anæsthetics.

All those who have employed the "negative variation" as an instrument wherewith to attack physiological problems are aware that it is a hard one to handle, and whether it can be used to add to knowledge of the functions of the cerebral cortex remains yet to be shown.

STEWART, *Notes on some applications in physiology of the "resistance" method of measuring temperature, with special reference to the question of heat production in mammalian nerves during excitation*, Journal of Physiology, 1891, XII 409.

The apparatus used registered changes in temperature by the swing of a galvanometer needle and in most experiments variations of 0.0005° C. could have been detected with certainty. Neither in frogs nor dogs and rabbits is there evidence of a variation of the above mentioned amount